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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
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Iridium Constellation LLC Petition for Rulemaking to Promote Expanded Mobile Satellite Service in the Big LEO MSS Band	)	RM-_____

PETITION FOR RULEMAKING OF IRIDIUM CONSTELLATION LLC

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IB 13-6

EXECUTIVE SUMMARY

Iridium is a Big LEO MSS provider focused on anticipating, innovating, and delivering solutions for the high-bandwidth satellite needs of first responders, U.S. military, U.S. government, consumers, businesses, maritime users, machine-to-machine ("M2M") applications, and users in rural or remote areas. In fact, Iridium is benefitting from growth in demand and capabilities due to its unique ability to provide communications that cover the entire country and globe 24/7 without the need for local terrestrial facilities or local gateways. Iridium is NOT pursuing standalone terrestrial services or diverting its authorized spectrum to businesses unrelated to MSS.

Globalstar, in contrast, has made clear that its vision for the future is focused on terrestrial use of its spectrum, not the provision of satellite services. On November 12, 2012, Globalstar filed a petition for rulemaking that, if granted, would bring into question the future of the Big LEO band as one of the last bastions for MSS. As documented in Iridium's January 14, 2013 Opposition, the rule changes sought by Globalstar would convert the Big LEO band into yet another MSS terrestrial spectrum play to the detriment of existing and future satellite services. Indeed, Globalstar even proposes to eliminate the obligation to provide MSS in the Big LEO spectrum and has made clear that its proposed terrestrial service, wherever operating, will preclude and have priority over MSS.

Ironically, the spectrum allocation between the two competing Big LEO MSS providers—Iridium and Globalstar—favors the company pursuing terrestrial rather than MSS opportunities. Globalstar occupies nearly three times the amount of the Big LEO MSS spectrum that Iridium is authorized to use. And while Iridium continues to experience robust growth in

MSS customers and traffic, Globalstar's satellite system remains impaired due to past satellite failures.

Against this backdrop, Iridium proposes a modest but important near-term change in the Commission's Big LEO MSS band plan to ensure spectrum for future MSS needs. Specifically, Iridium requests that the Commission reallocate 2.725 megahertz of Big LEO spectrum from CDMA and shared CDMA/TDMA use to TDMA MSS use (1616-1618.725 MHz) and proceed with license modifications to allow Iridium exclusive use of all the spectrum designated for TDMA MSS. In addition to Iridium's existing exclusive assignment (1618.725-1626.5), this would include 1.775 megahertz of spectrum currently allocated for CDMA MSS systems (1616-1617.775 MHz) and the 0.95 MHz of spectrum currently shared by TDMA and CDMA systems (1617.775-1618.725 MHz). The net effect of these proposed changes would be to establish immediately a 10.5 megahertz total allocation for TDMA Big LEO MSS and leave, for now, more than 22 megahertz of paired spectrum for CDMA Big LEO use by Globalstar. Because the in-orbit Iridium satellite system was constructed to operate over the entire requested 10.5 megahertz assignment, the added spectrum can be utilized as soon as authorized. After this reallocation, Globalstar would still hold more than twice the amount of spectrum available to Iridium, not including the additional 10.5 megahertz of industrial, scientific, and medical ("ISM") spectrum being sought by Globalstar in its pending petition to establish a Terrestrial Low Power Service ("TLPS")—a request on which Iridium has not taken a position.

The Big LEO MSS band plan proposed by Iridium is consistent with the public interest in ensuring spectrum for future MSS needs, helps move toward a more competitive band plan for Big LEO MSS providers, and retains more than sufficient spectrum to meet any demonstrable Big LEO MSS needs of Globalstar, whose interests, in any event, seem focused on terrestrial

uses. To ensure a comprehensive and complete look at existing and future Big LEO MSS spectrum policies, Iridium specifically requests that the Commission (1) initiate a proceeding to begin moving toward a more competitive Big LEO band plan by reallocating immediately a modest amount of CDMA Big LEO spectrum exclusively for TDMA Big LEO uses; (2) reject Globalstar's proposed rule changes that would impair or eliminate MSS uses of Big LEO spectrum; and, (3) consolidate consideration of Iridium's Petition for Rulemaking with the pending Globalstar Petition for Rulemaking if any of Globalstar's various proposals are deemed worthy of further inquiry.

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PETITION FOR RULEMAKING OF IRIDIUM CONSTELLATION LLC

Iridium Constellation LLC ("Iridium"), by its attorneys, hereby submits its "Petition for Rulemaking to Promote Expanded Mobile Satellite Service in the Big LEO MSS Band." The Big Low Earth Orbiting ("Big LEO") allocation is one of the few remaining homes for companies focused on providing mobile satellite services ("MSS") as opposed to pursuing terrestrial spectrum plays. Indeed, the Big LEO band has been a success story—in contrast to many other MSS allocations—and Iridium, as the leading Big LEO MSS provider, is experiencing significant growth in its business, traffic, and spectrum needs. To ensure continued access to spectrum for future Big LEO MSS needs, Iridium proposes a reallocation for exclusive time division multiple access ("TDMA") MSS use of 2.725 megahertz (1616-1618.725 MHz) of the more than 25 megahertz currently allocated to code division multiple access ("CDMA") MSS or for sharing by CDMA and TDMA MSS systems. In the end, this will create a 10.5 megahertz assignment (1616-1626.5 MHz) designated exclusively for TDMA MSS use and licensed to Iridium following a Section 316 license modification proceeding. In so doing, the Commission will ensure spectrum to meet future MSS growth needs, establish a more competitive spectrum band plan, and enhance the future of MSS offerings for the U.S. and the world.

As detailed below, Iridium believes that the time has come for the Commission to take a fresh look at the Big LEO MSS spectrum policies to accommodate and enable future growth, innovation, and advances in next-generation satellite services. Iridium proposes that the Commission protect the 1.6 GHz Big LEO band spectrum from encroachments by terrestrial uses and expand the amount of spectrum available for TDMA Big LEO MSS. Indeed, one catalyst for Iridium's request is a pending Petition for Rulemaking filed by the other Big LEO MSS provider (Globalstar, Inc.)[1] that proposes to eliminate the obligation to provide MSS and create a terrestrial service that would preclude MSS wherever deployed. Iridium opposed that Petition to the extent that Globalstar wants to convert the Big LEO band into a terrestrial home at the expense of MSS.[2] To consider future Big LEO MSS spectrum policies in a holistic manner, Iridium also contemporaneously requests that this petition and the Globalstar petition—to the extent the Commission chooses to pursue any aspect of that petition—be consolidated for Commission consideration in a single proceeding.[3]

I. THE COMMISSION SHOULD INITIATE A RULEMAKING TO INCREASE THE SPECTRUM AVAILABLE FOR TDMA BIG LEO MSS TO ACCOMMODATE FUTURE GROWTH.

The Commission should initiate a rulemaking proceeding, as it has before, to adapt the Big LEO MSS band plan to changing circumstances in the MSS market. To ensure that the Big LEO band plan appropriately promotes the continued vitality and future growth of critical MSS operations, the Commission should reallocate 2.725 megahertz of 1.6 GHz Big LEO spectrum

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1 Globalstar Inc., Petition for Rulemaking to Reform the Commission's Regulatory Framework for Terrestrial Use of the Big LEO MSS Band, RM-11685 (filed Nov. 13, 2012) ("Globalstar Petition").

2 Opposition of Iridium Constellation LLC, RM-11685 (filed Jan. 14, 2013).

3 *See* Motion to Consolidate of Iridium Constellation LLC, RM-11685, RM-_____, (filed Feb. 11, 2013).

for exclusive use by TDMA MSS systems. Importantly, Iridium, which has an in-orbit constellation capable of operating across this additional spectrum and whose next-generation system has been designed with the same capability, will be able to put these frequencies to use in the public interest immediately, without the need for any additional rule changes or delay due to technological development.

Through the requested rulemaking, the Commission should modify the Big LEO MSS band plan by reallocating the 1616-1617.775 MHz band from exclusive use by CDMA MSS to exclusive use by TDMA MSS systems. The Commission should also make available exclusively for TDMA MSS systems the 0.95 megahertz at 1617.775-1618.725 MHz currently designated for sharing by CMDA and TDMA MSS systems. The end result of these changes, after appropriate license modifications, would be that Iridium's TDMA MSS system would have exclusive use of 10.5 megahertz (1616-1626.5 MHz) of the 1.6 GHz Big LEO MSS band. Globalstar's CDMA MSS system would have exclusive use of 6 megahertz (1610-1616 MHz) of the 1.6 GHz Big LEO MSS band and 16.5 megahertz of the 2.4 GHz Big LEO MSS band, not counting the 10.5 megahertz of additional TLPS/ISM spectrum to which Globalstar seeks access in its Petition, on which Iridium has not taken a position.

A. The Commission Should Commence a Rulemaking to Implement Immediately Changes in the Big LEO MSS Band Plan.

Since the creation of the Big LEO band in 1994, the Commission has recognized the need occasionally "to re-examine the Big LEO spectrum sharing plan in a rulemaking based on the circumstances at the time and make additional findings to refine the use of the band to better serve the public interest."[4] The Commission has explained that a rulemaking is the appropriate

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[4] *See* Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, IB Docket No. 02-364, *Report and*

vehicle to consider modifications to the band plan because the changes are of general applicability to all Big LEO MSS licensees.[5] In the past, the Commission has revised the band plan taking into account changes to the MSS competitive landscape, the growing spectrum needs of the Big LEO MSS operators, and technical considerations, including the impracticality of spectrum sharing between incompatible systems.[6] Iridium strongly believes that the Commission should, once again, commence a rulemaking proceeding to consider adjustments to the Big LEO band plan.[7]

When it was originally created, the Big LEO band plan was intended to support sharing between five MSS operators: four operating CDMA systems and one operating a TDMA system. The Commission licensed the four CDMA MSS operators to share the 1610-1621.35 MHz and 2483.5-2500 MHz bands, giving them roughly 7 megahertz each of paired spectrum with the

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Order and Notice of Proposed Rulemaking, 18 FCC Rcd 1962, 2088 ¶ 265 (2003) (citing *Big LEO Order*, 9 FCC Rcd at 5959-61, ¶¶ 54-57) ("*Big LEO Spectrum Sharing Notice*").

5 *2007 Big LEO Spectrum Sharing Second Reconsideration Order* ¶ 23.

6 *See* Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, IB Docket No. 02-364, *Report and Order, Fourth Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 13356 (2004) ("*Big LEO Spectrum Sharing Order*"); *2007 Big LEO Spectrum Sharing Second Reconsideration Order*. *See also* Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, CC Docket No. 92-166, *Report and Order*, 9 FCC Rcd 5936, 5961 (1994) ("*1994 Big LEO Order*") (Contemplating a future rulemaking in response to changes in MSS market conditions, where it would "weigh a variety of factors in a rulemaking, including our preference for multiple entry, constraints on the assigned spectrum due to international coordination agreements, system efficiency, and system loading . . . .").

7 This petition does not require any rule changes for the relief requested to be effectuated. However, because of the Commission's past determination that Big LEO band plan changes are best considered in rulemaking, Iridium has proceeded on that basis. If, however, the Commission determines that a rulemaking is not needed, Iridium requests the Public Notice inviting comment on its Petition be sufficiently broad enough to permit immediate adoption of the proposed Big LEO Band Plan changes.

specifics of the sharing and coordination to be determined between the licensees. The Commission also licensed one TDMA operator to have exclusive use of the 1621.35-1626.5 MHz band. Eventually, each of the other CDMA licensees surrendered their authorizations, leaving Globalstar with 27.85 megahertz of paired Big LEO MSS band spectrum and Iridium with just 5.15 megahertz of unpaired spectrum.

In establishing the Big LEO spectrum sharing plan, the Commission stated that in the "unlikely scenario" that only one CDMA licensee went forward, it would reduce the amount of spectrum assigned to the CDMA operator and commence a rulemaking proceeding to consider other changes to the band plan.[8] The Commission began such a proceeding in 2003,[9] in which it initially modified the 1.6 GHz Big LEO band to allow TDMA MSS operators to use an additional 3.1 megahertz of spectrum at 1618.25-1621.35 on a shared basis with CDMA operators.[10] In response to a Petition for Reconsideration filed by Globalstar, the Commission revisited the Big LEO band plan in the *2007 Big LEO Spectrum Sharing Second Reconsideration Order*, based in part on recognition of "the impracticality of spectrum sharing between heavily loaded CDMA and TDMA MSS systems in the Big LEO L-band."[11] To address these technical concerns, the Commission reduced the amount of spectrum dedicated to shared use between CDMA and TDMA systems and designated a portion of that spectrum exclusively for TDMA use.

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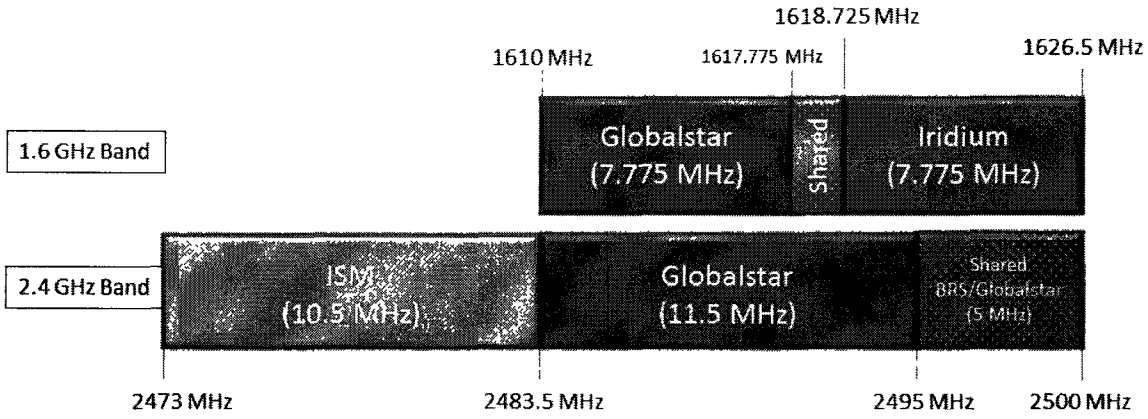
8 *1994 Big LEO Order*, 9 FCC Rcd at 5959-60 ¶ 54.

9 *See Big LEO Spectrum Sharing Notice.*

10 *See* Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, IB Docket No. 02-364, *Report and Order, Fourth Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 13386 (2004) ("*Big LEO Spectrum Sharing Order*").

11 *Id.* ¶ 14.

Current Big LEO Band Plan



Globalstar petitioned the Commission to obtain access to an additional 10.5 megahertz of ISM spectrum, which it will combine with its existing 2.4 GHz spectrum holdings to deploy for terrestrial use a wireless Internet access service based on the Wi-Fi standard.[12] As shown in the figure below,[13] a minor rebalancing of the Big LEO spectrum band will ensure that each provider has access to spectrum that meets the needs of their MSS customers. The adjustments to the band plan would be as follows:

- The 1616-1617.775 MHz band is reallocated from CDMA MSS to TDMA MSS usage exclusively; and
- The 1617.775-1618.725 MHz band is moved from shared use to exclusive TDMA MSS usage.

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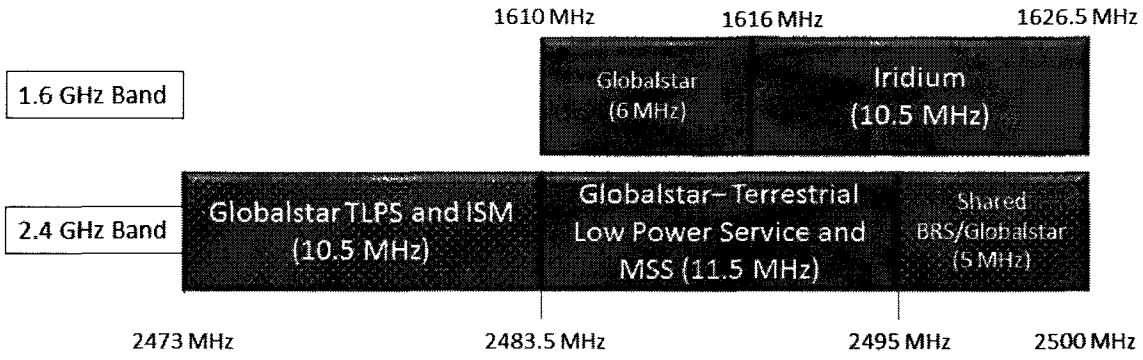
12 *See* Globalstar Petition.

13 The figure below assumes grant of Globalstar's request for access to ISM spectrum to deploy its TLPS service, however Iridium takes no position on that proposal.

Iridium Proposal



The proposed incremental expansion of 2.725 megahertz will make available 10.5 megahertz of 1.6 GHz Big LEO band spectrum (1616-1626.5 MHz) exclusively for TDMA MSS use. By analogy this is comparable to the amount of spectrum used for downlink-only operations by many contemporary mobile broadband systems, and Iridium will conduct both downlink and uplink operations in this spectrum. Even with this additional spectrum, Iridium will still have less than half of the total spectrum Globalstar enjoys across Big LEO Band—without even taking into account the additional 10.5 megahertz of TLPS/ISM spectrum.

B. Increasing the Amount of Spectrum Available for TDMA Use by Iridium Will Help Address the Future Demand for Critical Big LEO MSS.

The incremental addition of spectrum for TDMA systems sought by this Petition is essential to help address future demand for critical MSS communications. The Commission has long recognized the important public interest benefits provided by MSS that are not achievable with any other form of communications, particularly for first responders, the U.S. military, and the U.S. government during times of emergency. As explained below, the Big LEO band is one

of the last remaining exclusive homes for robust, nationwide MSS, such as the services provided by Iridium. Especially with the exit from the MSS market of many other satellite service providers, the value of preserving the Big LEO band for Iridium's MSS is paramount. The additional spectrum sought for TDMA MSS operations by this Petition would help ensure the long-term availability of important resources for public safety and other critical communications in our country and around the world.

1. Iridium's MSS Operations Provide Important Public Benefits.

The public interest necessity of mobile satellite services is well established. In a 2010 Notice of Proposed Rulemaking and Notice of Inquiry regarding MSS spectrum, the Commission recognized "the importance of maintaining MSS to provide services, for example, to public safety and Federal government agencies, to rural areas, and during natural disasters."[14] MSS "serve[s] important needs," and the agency correctly noted that "MSS systems can provide communications in areas where it is difficult or impossible to provide communications coverage via terrestrial base stations, such as remote or rural areas and non-coastal maritime regions, and at times when coverage may be unavailable from terrestrial-based networks, such as during natural disasters."[15] Indeed, the National Telecommunications and Information Administration ("NTIA") recently recognized as part of its proposed network architecture for the FirstNet

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[14] *See Fixed and Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 9481, ¶ 4 (2010) ("*MSS NPRM and NOI*").

[15] *Id.*, ¶¶ 3, 33.

Nationwide Network ("FNN") that it should leverage the reliability, redundancy, and ubiquity of MSS to ensure maximum network resiliency during times of emergency.[16]

Iridium operates the world's largest commercial satellite constellation, which consists of sixty-six low-Earth orbiting, cross-linked satellites operating as a fully meshed network and supported by in-orbit spares. The only mobile satellite communications provider capable of providing truly global service, Iridium's robust MSS system provides critical communications services to first responders, the Federal Government, aid organizations, medical care providers, and private users. In addition, Iridium's unique MSS system provides indispensable communications to the U.S. military and other federal agencies both at home and abroad, and demand for Iridium's MSS capabilities will only continue to grow, with increased need for connectivity beyond the areas served by terrestrial systems. Iridium's indispensable role in emergency telecommunications is recognized around the world: in October 2012 Iridium received an ITU Humanitarian Award "in recognition of the commitment and consistent leadership in supporting the use of telecommunications to save lives during emergencies."[17]

Some examples of Iridium capabilities and services are as follows:

- ***Military and U.S. Government Use.*** Iridium provides vital services to the Department of Defense and many federal U.S. bureaus, agencies and departments, including serving the critical and secure needs of U.S. and Coalition Forces throughout the Middle East region. Iridium's voice and data solutions improve situational awareness for military personnel and track critical assets in tough environments around the globe, providing a unique value proposition that is not easily duplicated. The Company has a strategic relationship with its U.S.

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16 *See* F. Craig Farrill, First Responders Network Authority Presentation to the Board (Sept. 25, 2012), *available at* http://www.ntia.doc.gov/files/ntia/publications/firstnet_fnn_presentation_09-25- 2012_final.pdf.

17 Press Release, International Telecommunication Union, *ITU Humanitarian Awards Presented* (Oct. 17, 2012) *available at* http://www.itu.int/net/pressoffice/press_releases/2012/78.aspx#.UQciKb_XbbM.

Government customers supported by differentiated and robust product offerings.[18] For example, the U.S. Drug Enforcement Administration and U.S. Border Patrol rely on Iridium's communication capabilities for critical national security needs.

- ***Tsunami Warning.*** Iridium's services have also played a vital role in preparing for domestic emergencies. For instance, since 2003, the U.S. National Oceanic and Atmospheric Administration ("NOAA") has depended on Iridium's services to operate its tsunami warning system, which utilizes satellite data links to transmit real-time data from deep ocean buoys. This warning system allowed NOAA to monitor the tsunami heading towards Hawaii after the Chilean earthquake as well as the aftereffects of the Japanese earthquake.

- ***Hurricane Relief.*** In the aftermath of Hurricane Katrina, Iridium worked quickly to get mobile satellite communications equipment into the hands of first responders at the federal, state and local levels. To meet the skyrocketing demand and ensure that equipment was delivered to critical service providers in a timely fashion, Iridium immediately adopted an around-the-clock manufacturing schedule. Within the first seventy-two (72) hours of the disaster, Iridium traffic in the affected region increased more than 3,000 percent, while the number of Iridium subscribers increased more than 500 percent. Brigadier General Mark A. Graham recognized the critical importance of Iridium satellite communications when he noted that in the aftermath of Katrina, "All of our command and control nodes were used to coordinate and synchronize our 24-hour evacuation operations. We provided our own communications using Iridium satellite phones and intermittent Blackberry coverage. During the evening of Thursday, September 1, the OCP was augmented with an additional 28 soldiers and Department of the Army civilians from Fifth U.S. Army. This allowed us to better maintain 24-hour operations. Utilizing this network, by the end of the day on September 1, we had evacuated approximately 15,000 displaced persons out of the City of New Orleans."[19]

- ***Gulf Cleanup.*** Iridium's satellite communications network was also deployed in innovative ways to assist in the cleanup and recovery effort after the April 2010 explosion of the Deepwater Horizon oil rig and the subsequent oil spill in the Gulf of Mexico. By incorporating Iridium satellite transceivers into robots and buoys that can be deployed on site, researchers and other relief workers were able to monitor and track the movements of the oil spill in real time, greatly improving the efficiency of cleanup efforts.

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[18] Iridium 3Q 2012 Results.

[19] *Hurricane Katrina: Managing the Crisis and Evacuating New Orleans: Hearing Before the United States Senate Committee on Homeland Security and Government Affairs*, Testimony of Brigadier General Mark A. Graham, 109th Congress (February 1, 2006).

- ***Earthquakes.*** On the international stage, after the devastating earthquake in Haiti, Iridium and its partners delivered communications services critical to the coordination of relief and rescue efforts. Relief organizations—including United Nations agencies, the American Red Cross, FEMA, the U.S. Department of Defense, the U.S. State Department, the Mexican Red Cross and others—relied on Iridium handsets and equipment for their communications needs in Haiti. Similarly, in the aftermath of the earthquake in Chile in February 2010, Iridium's services proved to be essential. Indeed, Secretary of State Hillary Clinton personally delivered twenty (20) satellite phones to Chile within days of the earthquake.[20] Iridium also assisted in reestablishing domestic and international communications in Japan following the devastating earthquake and tsunami in March 2011. To ensure that Iridium services reached critical government, military, and first responder users as quickly as possible, Iridium worked directly with major Japanese telecom company KDDI to ship thousands of new handsets to appropriate personnel and ensure accelerated activation of those Iridium systems.

- ***MedSTAR Services.*** Iridium's emphasis on innovation ensures subscribers have the latest cutting-edge technology in emergency response. Iridium currently provides critical backup and support services to MedSTAR Health with satellite phones and airtime for MedSTAR Health's facilities in the Washington, DC region, enabling existing systems to be used even when traditional phone service is unavailable. Iridium's automated tracking and voice services were also installed in MedSTAR Health's transport helicopter fleet, enabling MedSTAR Health to view the location and status of its fleet and allow its helicopters to communicate with hospitals.

- ***Truly Global Coverage.*** The distinctive architecture of Iridium's system allows it to serve remote domestic and international areas that other telecommunications operators are unable to reach. Nearly 600,000 worldwide customers utilize Iridium's Big LEO MSS.[21] Iridium is the only provider of critical flight, maritime and worker safety applications in the polar regions, including Alaska.

- ***Diverse Commercial Use.*** Iridium's diverse commercial customer base, which includes markets such as oil and gas, mining, recreation, forestry, construction, transportation, and emergency services, rely on Iridium's products and services as

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[20] *See* Sarah Miller Llana, *Chile Earthquake: Hillary Clinton Arrives With Satellite Phones*, The Christian Science Monitor, March 2, 2010, *available at* http://www.csmonitor.com/World/Americas/2010/0302/Chile-earthquake-Hillary-Clinton-arrives-with-satellite-phones.

[21] Press Release, Iridium, *Iridium Announces Third-Quarter 2012 Results* (Nov. 1, 2012), *available at* http://investor.iridium.com/releasedetail.cfm?ReleaseID=717765 ("Iridium 3Q 2012 Results"); Petition at 2.

critical to their daily operations.[22] For example, the Iridium OpenPort® service offers a suite of capabilities for maritime vessel telecommunications optimization and its transceivers are engineered for enhanced durability to withstand the harshest maritime conditions.[23]

2. Demands for Iridium's MSS Will Continue to Grow.

Iridium's operational satellite system is already heavily utilized, and demand for Iridium's services is expected to continue to grow. In 2012, Iridium surpassed 595,000 subscribers worldwide, and its third-quarter 2012 results affirmed its outlook for continued growth, with subscribership up by 17 percent, driven by the strength of M2M and commercial voice customers.[24] Remarkably, Iridium operates its global MSS system on just 8.725 megahertz of unpaired spectrum—0.95 megahertz of which is shared with Globalstar's CDMA MSS system. Iridium constantly strives to maximize the potential use of its spectrum to serve its critically important MSS customers, but it already feels the effects of its limited spectrum holdings in times of increased demand. Indeed, the Commission repeatedly has recognized both the crucial importance of Iridium's MSS services in times of emergency and its very real spectrum constraints by issuing to Iridium special temporary authority to use up to 10.5 megahertz of 1.6 GHz Big LEO band spectrum—the same spectrum that is the subject of this Petition.[25]

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22 Iridium 3Q 2012 Results.

23 Press Release, Iridium, *Another Major Shipping Company, Reederei Werner Bockstiegel, Upgrades to Iridium Pilot™ and se@COMM Data Package* (June 6, 2012), *available at* http://investor.iridium.com/releasedetail.cfm?ReleaseID=680578.

24 Iridium 3Q 2012 Results.

25 *See, e.g.,* SAT-STA-20030425-00074 (granting Iridium STA for additional spectrum in the Middle East for U.S. Department of Defense use); SAT-STA-20050901-00171 (granting Iridium STA for additional spectrum following Hurricane Katrina); SAT-STA-20050923-00180 (granting Iridium STA for additional spectrum following Hurricane Rita); SAT-STA-20100115-00011 (granting Iridium STA for additional spectrum following the earthquake in Haiti); SAT-

The additional spectrum sought in this Petition is necessary to support the future growth of Iridium's rapidly growing MSS business. Various factors are expected to contribute to the expected surge in demand for Iridium's MSS in the years ahead, not the least of which is that today, the Big LEO band spectrum is one of the last remaining bands being used exclusively for robust, global MSS operations. One by one, other MSS operators are abandoning their satellite customers and transitioning to terrestrial-focused business plans. The Commission recently adopted a Report and Order and Order of Proposed Modification allowing DISH Network Corporation ("DISH") flexible, terrestrial use of 2 GHz spectrum previously assigned for MSS use.[26] In the L-band, LightSquared again seeks to modify its ATC authorization to facilitate deployment of a terrestrial broadband network.[27] And now Globalstar requests that the Commission grant it full flexibility of use for its expansive 2.4 GHz spectrum holdings so that it can deploy a terrestrial service that it openly acknowledges as incompatible with MSS.[28]

STA-20110311-00052 (granting Iridium STA for additional spectrum following the earthquake in Japan).

[26] Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-220 MHz Bands, *Report and Order and Order of Proposed Modification*, FCC 12-151, ¶ 318 (rel. Dec. 17, 2012) ("*AWS-4 R&O and Order*").

[27] *See* Federal Communications Commission Seeks Comment on LightSquared's Request to Modify Its ATC Authorization, IB Docket 12-340, *Public Notice*, 27 FCC Rcd 14290 (2012).

[28] Iridium notes that while it is true that several MSS operators have sought to take advantage of the recent focus on mobile broadband to leverage their spectrum for terrestrial applications, this should not be interpreted, as Globalstar asserts, as repudiation of the ATC concept or as some sort of "momentum" toward elimination of satellite protection obligations. *See* Consolidated Reply of Globalstar, Inc. at 18, RM-11685 (filed January 29, 2013) ("Globalstar Reply"). In reality, the Commission consistently has demonstrated its commitment to protecting and expanding established satellite services. This is perhaps made most clear by the fact that Globalstar's ATC waiver was rescinded almost contemporaneously with actions cited by Globalstar as evidence of a Commission lack of concern for ensuring continued MSS. *See* Globalstar Licensee LLC Application for Modification of License to Extend Dates for Coming into Compliance with Ancillary Terrestrial Component Rules, IBFS File No. SAT-MOD-20091215-00152, *Order*, 25 FCC Rcd 13114 (2010).

During a recent webinar, Globalstar and its technical consultant spoke in detail about the MSS "exclusion zones" that would be created by every TLPS transmitter.[29] Indeed, Globalstar seems to want to turn the fundamental premises of the ATC system on its head: rather than an integrated, ancillary terrestrial system to fill in gaps in MSS coverage, Globalstar seeks to deploy widespread terrestrial services that would preclude MSS operations in most populated areas where TLPS would be prevalent and preemptive, relegating its MSS to a marginalized service with an ever-contracting footprint.

The shrinking amount of spectrum dedicated solely to mobile satellite services highlights the necessity of safeguarding MSS use of the 1.6 GHz Big LEO band and enabling its future growth. The Commission should ensure that there is at least one dedicated spectrum block for MSS providers focused on satellite services and that there is sufficient spectrum to meet future needs. While other MSS licensees are abandoning the satellite sector, Iridium is in the midst of an unprecedented wave of innovation. Iridium has been expanding from its core voice and short burst data offerings into more robust data services and new applications. Among the new applications and products Iridium, along with its partners is developing are:

- Advanced geolocation/geoauthentication applications that can penetrate deep indoors;
- Smartphone hotspots that provide voice and data services in remote locations using devices consumers already carry;
- Portable solutions enabling the creation of virtual P25 land mobile radio networks to help satisfy the critical communications needs of military, public safety, and enterprise customers in remote locations;
- Data backup systems delivering speeds up to 128 kbps in remote areas providing unmatched flexibility;

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[29] L. Barbee Ponder, General Counsel & VP Regulatory Affairs, Globalstar Inc. & John A. Dooley, Managing Director, Jarvinian Wireless Innovation Fund, Fierce Live! Webinar: Globalstar's New "Wi-Fi" Super Highway (Jan. 22, 2013) ("Globalstar TLPS Presentation").

- Innovative global data broadcast services that will facilitate group messaging, emergency alerting, among other new applications;
- Remote monitoring of biosensitive information; and
- M2M solutions connecting large numbers of geographically diverse points simultaneously.

Iridium, in conjunction with its U.S. government partners, also is in the process of developing an affordable, interoperable push-to-talk solution that has been long-desired by its customers and is expected to enter trial deployments in 2014. As Iridium continues to introduce different, highly attractive uses of its system, the demands on its spectrum become greater. Having additional spectrum access will allow Iridium to continue this innovation and heterogeneous use of its system.

The launch of Iridium's next-generation constellation, Iridium NEXT, will also drive demand for Iridium's services. Iridium's NEXT system—scheduled for initial launch in 2015—will bring the potential for new, greater-bandwidth advanced services that are eagerly anticipated by Iridium's customers.[30] Iridium NEXT will deliver a high-speed user experience with sustained data speeds up to 512 Kbps and bursts up to 1.5 Mbps over an end-to-end packet data solution. Building upon the innovation already under way with Iridium's current constellation, this leap in capability will have a substantial, tangible impact across the land mobile, maritime, aviation, and M2M business and beyond into entirely new services and sectors previously not served by satellite solutions. The increased emphasis on data services with NEXT will result in an explosion in demand similar to what was experienced by terrestrial mobile network operators with the advent of mobile broadband. Access to the additional spectrum requested by this

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[30] Anticipated to launch in 2015, Iridium NEXT builds on Iridium's existing constellation architecture to enhance and extend mobile communication services. Press Release, Iridium, *Iridium NEXT Constellation Passes Critical Milestones; On Schedule for Planned Launch in 2015* (Mar. 12, 2012), http://investor.iridium.com/releasedetail.cfm?releaseid=656450.

petition will enhance Iridium's ability to deliver consistent, high-speed data to its growing customer base. Just as the Commission recognizes the importance of identifying appropriate spectrum resources for the wireless industry, it must not neglect the critical needs of satellite users. Iridium NEXT will be the face of Iridium's services for more than a decade to come. With this long operational life it is essential that Iridium have the spectrum resources in place to support its vitality over the long term.

There also is a growing understanding of the need for robust, nationwide mobile satellite connectivity as a necessary component to support the mission-critical communications needs of public safety and first responders. As mentioned above, FirstNet is expected to rely heavily on MSS to accomplish its goals of ubiquitous nationwide coverage for public safety communications.[31] In addition, Iridium's Iridium Force® initiative is spurring increased innovation and spectrum use through the partnering and licensing of Iridium's core technologies and network.[32] This convergence of new markets, new technologies, and new needs will place new demands on Iridium's system, and the incremental addition of spectrum sought by this Petition is a reasonable solution to these challenges.

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[31] *See* F. Craig Farrill, First Responders Network Authority Presentation to the Board (Sept. 25, 2012), *available at* http://www.ntia.doc.gov/files/ntia/publications/firstnet_fnn_presentation_09-25- 2012_final.pdf.

[32] Under Iridium Force, Iridium has opened and licensed its core technologies and network to extend its communications reach. For example, Wi-Fi products and services launched last year allow Blackberry, Android, iPhone, iPad and laptop users to connect to their devices to the Iridium network when using particular models of Iridium handsets. Press Release, Iridium, *Iridium Force - A New Vision for Global Communications - Designed to Enhance and Expand the Way People and Organizations Connect Everywhere* (Sept. 7, 2011), http://investor.iridium.com/releasedetail.cfm?releaseid=609735.

C. The Proposed Modification Will Establish a Pro-Competitive Band Plan Ensuring Sufficient Spectrum For Both TDMA and CDMA MSS Needs.

The incremental, but important, band plan adjustment proposed by this Petition will give Iridium 10.5 megahertz of exclusive TDMA spectrum, bringing it closer in spectrum allocation to other MSS operators and enabling it to accommodate the expected growth in demand for its services. At the same time, Globalstar will still have more than sufficient spectrum to operate its current and future Big LEO MSS system.

1. The Modest Band Plan Change Is an Important First Step to Moving Towards a Competitive and Balanced Big LEO Band Plan

Iridium has deployed the most successful MSS system in the country and the only Big LEO MSS system capable of providing service across the entire globe 24/7, while the imminent launch of Iridium NEXT, among many factors, will contribute to growing demand for Iridium's services. Iridium believes that a minor adjustment to its spectrum holdings will begin to help close its competitive spectrum gap and allow it to better meet the burgeoning demand for MSS from its customers. In 2005, the Commission found it necessary to assign the 2 GHz band MSS operators 20 megahertz of paired spectrum—10 megahertz in each direction—in order to "allow them to compete effectively in the market for mobile telecommunications services to the benefit of U.S. consumers."[33] Clearly, Iridium, with less than 9 megahertz of unpaired spectrum in the 1.6 GHz band, has demonstrated the capability of competing on far less than the Commission's 2005 estimate for other MSS operators. However, with the projected growth in demand for Iridium's next-generation services, it is more important than ever that the Commission address

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[33] *See* Use of Returned Spectrum in the 2 GHz Mobile Satellite Service Frequency Bands, IB Docket Nos. 05-220, 05-221, *Order*, 20 FCC Rcd 19696, 19697 ¶ 1 (2005).

the competitive imbalance in this band.[34] Therefore, the Commission should take steps, as detailed above, to grant Iridium exclusive access to 10.5 megahertz of 1.6 GHz Big LEO band spectrum, thereby enabling Iridium to maximize the technical potential of its constellation.

2. Globalstar Will Retain More Than Enough Spectrum To Offer Competitive Big LEO Services.

Given the modest spectrum rebalancing requested in this Petition, Globalstar will retain more than enough spectrum resources to offer competitive, advanced Big LEO band services. With the band plan changes proposed in this Petition, Globalstar would have 22.5 megahertz of spectrum in the 2.4 GHz and 1.6 GHz bands—more than twice the amount of Iridium's MSS spectrum. This does not even take into account the 10.5 megahertz of TLPS/ISM spectrum Globalstar requests. There can be no doubt that even with the incremental reduction in 1.6 GHz band spectrum that would result from the proposals in this Petition, Globalstar will have ample resources to pursue its business plans.

The incremental reduction in Globalstar's 1.6 GHz band spectrum will leave Globalstar with more than adequate spectrum for its MSS operations. As shown in the graphic above,[35] Globalstar will retain expansive spectrum holdings in both the 1.6 and 2.4 GHz bands in which to provide its satellite services (should Globalstar, inconsistent with its efforts in its Petition to remove any responsibility to provide MSS, again seek to support MSS in both the 1.6 and 2.4 GHz bands).

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[34] In addition to being part of the Commission's statutory mandate, *see, e.g.*, 47 U.S.C. § 332(a)(3), promoting competition has always been a driving goal for the Commission in setting the Big LEO band plan. *See Big LEO Order* ¶ 225 ("Our objectives have been to promote efficiency and innovation in the licensing and use of the electromagnetic spectrum, to develop competitive and innovative communications systems, and to promote effective and adaptive regulations.");

[35] *See supra* p. 9.

Finally, the proposed Big LEO band plan does not even impede Globalstar's ill-advised long-term vision of using the 1.6 GHz Band spectrum for terrestrial LTE service.[36] During a recent webinar, Globalstar illustrated a desired future LTE configuration with a single five megahertz LTE channel operating in Globalstar's exclusive 1.6 GHz band assignment.[37] While Iridium continues to oppose Globalstar's proposal to introduce LTE to the 1.6 GHz band, if the Commission nonetheless decides to move forward with Globalstar's proposal, it is clear that the six megahertz of exclusive 1.6 GHz band spectrum that would be held by Globalstar under Iridium's proposal will be enough to support the contemplated LTE service. Iridium therefore asserts that the slight modification to the Big LEO 1.6 GHz band will not adversely affect Globalstar's future network plans and will allow sufficient spectrum for Globalstar to continue to meet its communications requirements.

II. THE PROPOSED BAND PLAN CAN BE IMPLEMENTED QUICKLY AND EFFICIENTLY TO BEGIN ACCRUING IMMEDIATE BENEFITS TO THE PUBLIC INTEREST.

Unlike the changes sought by Globalstar, which would require multiple rulemaking proceedings, analyses of potential interference to a variety of co-band and adjacent service, and the development of entirely new technical standards and service rules, Iridium's proposal can be implemented quickly, efficiently, and without the need for a change to a single Commission rule. Additionally, because Iridium can use this additional spectrum immediately with both its existing

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[36] Although Globalstar asserts that Iridium has provided "no explanation" as to how expanded terrestrial use of the Big LEO band would negatively affect Iridium's MSS, Globalstar Reply at 19, Iridium has demonstrated in its Opposition and this Petition its growing demand for its MSS. Globalstar's efforts to transform the Big LEO band into a "terrestrial first, MSS second-or-never" allocation are fundamentally inconsistent with Iridium's increasing spectrum needs.

[37] Globalstar TLPS Presentation, Presentation slides at 12, *available at* http://www.fiercewireless.com/offer/globalstar_webinar (on file with Petitioner).

and future technical infrastructure, the Commission should move swiftly on this proposal confident of immediate benefits to the public as opposed to at some indeterminate future date. After conducting a rulemaking to modify the band plan, the Commission need only modify Iridium's license pursuant to Section 316, as discussed below, and Iridium will be able immediately to start leveraging these additional spectrum resources to serve the public interest.

A. Iridium Can Put the Additional Spectrum to Use Immediately.

The adjustment to the 1.6 GHz Big LEO band plan proposed herein would not require any revisions to existing technical rules and protections in the band. Iridium, by this proposal, does not seek any change to power levels or interference protections, nor does it seek authorization to conduct any operations at variance to existing rules. For example, the proposed band plan modification would require no change to the table of frequency allocations, and it fits within the existing frequency assignments of 25.202.

Importantly, because this is a band plan revision without any change to technical service rules or interference protection criteria, no new interference analyses are required for the Commission to decide to implement Iridium's proposal. From inception, the Big LEO band plan contemplated split use of the 1.6 GHz band by TDMA and CDMA MSS systems, and this proposed change would only shift slightly the edge between these services. Therefore, contrary to Globalstar's inchoate proposed rule changes intended to facilitate the introduction of terrestrial mobile broadband operations to the Big LEO band, Iridium's proposal can be implemented immediately, without the need for further testing and detailed interference analysis.

Moreover, Iridium is ready—today—to bring the benefits of this additional spectrum to bear in the critical MSS communications needs of its first responder, U.S. military, U.S. government, business, and consumer customers. Unlike Globalstar's conceptual future use of the Big LEO band spectrum, which would require standards development, construction of

terrestrial facilities, the design and manufacture of additional user devices, negotiation and execution of vendor and partner agreements, and the untold number of other delays inherent in trying to create a new market in a one-off service, Iridium could make immediate use of the additional spectrum requested by this petition with existing technology to satisfy the growing MSS needs of its customers. There would be no need for long build-out periods or development of new technologies or business models—Iridium's current and future satellite constellations have been designed from the start with the capability to operate over the 10.5 megahertz of 1.6 GHz Big LEO band spectrum at 1616-1626.5 MHz. Indeed, Iridium already has conducted operations on the additional spectrum on numerous occasions pursuant to Commission-issued special temporary authority to support disaster recovery efforts or in other times of emergency, and it has done so quickly and effectively.[38]

B. After the Rulemaking, the Commission Should Modify the Big LEO MSS Providers' Authorizations Pursuant to Section 316.

After the requested rulemaking proceeding to increase TDMA MSS access to the Big LEO band, the Commission should modify Iridium's and Globalstar's satellite authorizations. As it did in 2008,[39] subsequent to the new rulemaking, the Commission should modify the Big LEO MSS authorizations of Iridium and Globalstar pursuant to Section 316 of the

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[38] *See, e.g.,* SAT-STA-20030425-00074 (granting Iridium STA for additional spectrum in the Middle East for U.S. Department of Defense use); SAT-STA-20050901-00171 (granting Iridium STA for additional spectrum following Hurricane Katrina); SAT-STA-20050923-00180 (granting Iridium STA for additional spectrum following Hurricane Rita); SAT-STA-20100115-00011 (granting Iridium STA for additional spectrum following the earthquake in Haiti); SAT-STA-20110311-00052 (granting Iridium STA for additional spectrum following the earthquake in Japan).

[39] *See* Globalstar Licensee LLC, GUSA Licensee LLC and Iridium Constellation LLC, Iridium Satellite LLC, Iridium Carrier Services LLC, Modification of Authority to Operate a Mobile Satellite System in the 1.6 GHz Frequency Band, *Order of Modifications*, 23 FCC Rcd 15207 (2008).

Communications Act to reflect Iridium's exclusive use of the 1616-1626.5 MHz portion of the Big LEO MSS Band. This two-step process of a rulemaking followed by license modification is consistent with past precedent in this band and also allows for ample participation by the public and the parties, which is especially important in light of the significant public interest considerations related to the preservation of the first responder, U.S. military, U.S. government, and commercial services supported by the Big LEO MSS band. Because Iridium already has the experience, knowledge, and technical capability necessary to use this additional spectrum, it can begin serving its customers over the new resources immediately upon the effectiveness of the modification order.

III. CONCLUSION

As documented above, the Big LEO MSS band proposed by Iridium is consistent with the public interest in ensuring spectrum for future MSS needs, helps move toward a more competitive band plan for Big LEO MSS providers, and retains more than sufficient spectrum to meet any demonstrable Big LEO MSS needs of Globalstar, whose interests, in any event, seem focused on terrestrial uses. To ensure a comprehensive and complete look at existing and future Big LEO MSS spectrum policies, Iridium specifically requests that the Commission (1) initiate a proceeding to begin moving towards a more competitive Big LEO band plan by reallocating immediately a modest amount of CDMA Big LEO spectrum exclusively for TDMA Big LEO uses; (2) reject Globalstar's proposed rule changes that would impair or eliminate MSS uses of Big LEO spectrum; and, (3) consolidate consideration of Iridium's Petition for Rulemaking with the pending Globalstar Petition for Rulemaking if any of Globalstar's various proposals are deemed worthy of further inquiry.

Respectfully submitted,

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